

What is claimed is:

1. A method of generating color data for image formation in a color image forming device by converting data of color values for three colors of cyan, magenta, and yellow, representing a color image to be formed, into data of color values for four colors of cyan, magenta, yellow, and black, the method comprising:

preparing a plurality of black data generating tables which have different black data conversion characteristics from one another;

receiving a set of color data including color values for three colors of cyan, magenta, and yellow;

extracting a minimum value among the three color values in the received set of color data;

selecting a black data generating table dependently on color of the extracted minimum value; and

generating a value for black using the selected black data generating table and based on the extracted minimum value.

2. A method according to Claim 1, further comprising the step of correcting the color values for cyan, magenta, and yellow in the received color data set by subtracting the generated value for black from the three values for cyan, magenta, and yellow, respectively.

3. A method according to Claim 1, wherein the

plurality of black data generating tables include three different tables, each having a one-on-one correspondence with one of cyan, magenta, and yellow.

4. A method according to Claim 3, wherein each of the  
5 three black data generating tables is configured to allow the value for black to increase as the value of a corresponding color value increases and to allow the rate of change for the value for black to decrease as the value of the corresponding color value approaches a predetermined  
10 maximum.

5. A method according to Claim 1, wherein the black data generating tables include two tables associated with cyan and yellow, and the table selecting process selects one of the two tables when the extracted minimum value is for  
15 magenta.

6. A method according to Claim 5, further comprising a step of previously determining one of the two tables that is to be selected for magenta.

7. A method according to Claim 1, wherein one of the  
20 plurality of black data generating tables is a first table configured to allow the black data generating step to generate a value or zero for black when the value of the corresponding color is less than or equal to a first prescribed limit value.

25 8. A method according to Claim 7, wherein another one

of the plurality of black data generating tables is a second table configured to allow the black data generating step to generate a value or zero for black when the value of the corresponding color is less than or equal to a second  
5 prescribed value that is smaller than the first prescribed limit value.

9. A method according to Claim 7, wherein the first table is a black data generating table for cyan that is selected when the extracted minimum value is for cyan.

10 10. A method according to Claim 8, wherein the second table is a black data generating table for yellow that is selected when the extracted minimum value is for yellow.

11. A color data generating device, provided in a color image forming device, for generating color data for  
15 image formation by converting data of color values for three colors of cyan, magenta, and yellow, representing a color image to be formed, into data of color values for four colors of cyan, magenta, yellow, and black, the device comprising:

20 a table storage portion storing a plurality of black data generating tables which have different black data conversion characteristics from one another;

an input portion receiving a set of color data including color values for three colors of cyan, magenta,  
25 and yellow;

an extracting portion extracting a minimum value among the three color values in the received set of color data;

a table selecting portion selecting a black data generating table dependently on color of the extracted minimum value; and

a black generating portion generating a value for black using the selected black data generating table and based on the extracted minimum value.

12. A color data generating device according to Claim 11, further comprising a correcting portion correcting the color values for cyan, magenta, and yellow in the received color data set by subtracting the generated value for black from the three values for cyan, magenta, and yellow, respectively.

13. A color data generating device according to Claim 11, wherein the plurality of black data generating tables include three different tables, each having a one-on-one correspondence with one of cyan, magenta, and yellow.

14. A color data generating device according to Claim 13, wherein each of the three black data generating tables is configured to allow the value for black to increase as the value of a corresponding color value increases and to allow the rate of change for the value for black to decrease as the value of the corresponding color value approaches a predetermined maximum.

15. A color data generating device according to Claim 11, wherein the black data generating tables include two tables associated with cyan and yellow, and the table selecting portion selects one of the two tables when the  
5 extracted minimum value is for magenta.

16. A color data generating device according to Claim 15, further comprising a memory previously set with data indicative of one of the two tables that is to be selected for magenta by the table selecting portion.

10 17. A color data generating device according to Claim 11, wherein one of the plurality of black data generating tables is a first table configured to allow the black data generating portion to generate a value or zero for black when the value of the corresponding color is less than or  
15 equal to a first prescribed limit value.

18. A color data generating device according to Claim 17, wherein another one of the plurality of black data generating tables is a second table configured to allow the black data generating portion to generate a value or zero  
20 for black when the value of the corresponding color is less than or equal to a second prescribed value that is smaller than the first prescribed limit value.

19. A color data generating device according to Claim 17, wherein the first table is a black data generating table  
25 for cyan that is selected by the table selecting portion

when the extracted minimum value is for cyan.

20. A color data generating device according to Claim  
18, wherein the second table is a black data generating  
table for yellow that is selected by the table selecting  
5 portion when the extracted minimum value is for yellow.